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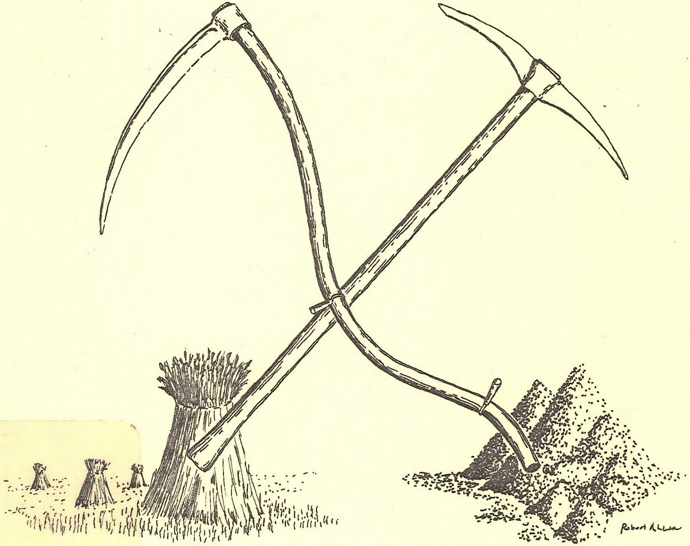

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Prepared by Gregg Larson of the Land Use Work Group in cooperation with the U.S. Department of Interior, Bureau of Land Management, and the Natural Resources Council of the State of North Dakota.

March 1, 1978

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PREFACE

This document has been prepared to supplement information contained in the West-Central North Dakota Regional Environmental Impact Study on Energy Development. Where feasible, data supportive of the study were included in the body of the study document itself in the form of appendices. However, in the case of the Climate and Air Quality, Economic and Social Conditions, and Land Use components, additional supportive methodological data in the form of Technical Supplements were deemed desirable. These Technical Supplements provide additional information for the reader who wishes to examine a particular environmental component in greater detail than is available in either the summary document or the study document itself.

In addition, a Technical Report describing Coal Related Impacts to the Ft. Berthold Reservation has been prepared. This document, prepared at the request of the North Dakota Indian Affairs Commission, examines the impact of proposed energy developments upon the Ft. Berthold Reservation exclusively.

Copies of:

Climate and Air Quality Technical Supplement
Economic and Social Conditions Technical Supplement
Land Use Technical Supplement and
Coal Related Impacts to the Ft. Berthold Reservation

are available on request from:

Regional EIS Office
1533 North 12th Street
Bismarck, ND 58505

BLM District Office
DSC, Pulver Hall, Box 1229
Dickinson, ND 58601

BLM, Montana State Office
PO Box 30157
Billings, MT 59107

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INTRODUCTION

This technical supplement is designed to provide additional methodological and technical information in support of the land use component of the West-Central North Dakota Regional Environmental Impact Study on Energy Development. The supplement discusses land use acreage by categories and presents supplemental data in tabular form. The transportation section defines the functional categorization of highways in the study area, and provides additional information on railroad, air, and transmission systems. The section on ownership discusses the surface and subsurface ownership pattern in the study area with emphasis on federal and state holdings. Lastly, the planning and zoning section presents two examples of conditions adopted by County Commissioners in conjunction with issuance of zoning permits to a coal gasification facility and a lignite mining facility.

LAND USE

Figures for the total seven county study area surface and for individual county surfaces were based on the exact survey acreage for each township and obtained from the Resource Inventory Monitoring System (RIMS) Project, North Dakota Agricultural Experiment Station.

With the exception of the urban/built-up acreage category, the land use distribution was derived from 1975 Bureau of Land Management color infra-red photographic interpretations. This data was complemented with information from the Regional Environmental Assessment Program (REAP) because of a lack of color infra-red coverage for portions of Burleigh and Morton Counties.

Urban/Built-up Land

Figures for urban/built-up acreage were derived from aerial photos, recent Highway Department maps and photos of incorporated areas[1], and U.S. Geological Survey photo quads. Urban/built-up acreage included incorporated and unincorporated development, rural subdivisions, energy facilities, and mine service areas. The area of this acreage was planimetered and subtracted from the various vegetative classifications mapped on the basis of the color infra-red photography, which did not delineate urban/built-up uses.

Cropland

Designation of national prime farmland and farmland of state importance requires up-to-date detailed soil maps[2]. Since these were not available for all of the seven counties, the Soils Work Group developed a procedure for classifying these lands based upon general soil maps. While this procedure does indicate some concentrations of these lands, it tends to considerably underestimate the acreage. For example, only 5% of Mercer County would be classified as prime using general soil maps, while 12% would be so classified using detailed soil maps. The Land Use component used data based on detailed maps whenever possible, with general soil map data used only when detailed maps were unavailable.

The differences between irrigated acreage classified by the North Dakota Water Commission[3] and North Dakota State University[4] are shown in Table 1. The NDSU estimates imply that slightly more than half of the acreage permitted by the Water Commission has actually been irrigated.

Rangeland

The rangeland classification can be further subdivided into grassland and shrubland categories, as shown in Table 2.

Barren Land

The barren land classification can be further subdivided into barren and mined land categories, as shown in Table 3.

Estimates of prime farmland affected by the proposed action were obtained from the Soils Work Group. In almost every case, these estimates were derived from general soil survey data. Although the general soil maps may provide some indication of prime farmland concentrations, analysis utilizing detailed soil maps is required to accurately define the location of prime soils.

Irrigation permitted acreage is broken out by project and level in Table 4.

Table 1

IRRIGATED ACREAGE BY COUNTY

County	Water Commission Permitted Acres	NDSU Estimated Irrigation Acres
BURLEIGH	18,600	9,224
DUNN	6,879	2,835
McLEAN	17,466	6,227
MERCER	5,900	3,352
MORTON	5,978	3,250
OLIVER	4,862	1,790
STARK	1,393	480
TOTAL	61,078	27,158

Source: PSC Inventory Report, NDSU Cooperative Extension Service 1977.

Table 2

RANGELAND ACREAGE BY COUNTY

County	Grassland Acres	Shrubland Acres	Total Rangeland Acres
BURLEIGH	435,983	7,569	443,552
DUNN	518,618	12,955	531,573
McLEAN	266,474	10,152	276,626
MERCER	307,378	8,189	315,567
MORTON	608,093	11,699	619,792
OLIVER	213,175	5,666	218,841
STARK	284,783	8,736	293,519
TOTAL	2,634,504	64,966	2,699,470

SOURCE: BLM and Larson 1977.

Table 3

BARREN LAND ACREAGE BY COUNTY

County	Barren or Badland Acres	Mined Land Acres	Total Barren Land Acres
BURLEIGH	5,462	295	5,757
DUNN	141,783	59	141,842
McLEAN	7,758	1,001	8,759
MERCER	357	5,165	5,522
MORTON	1,949	167	2,116
OLIVER	292	2,378	2,670
STARK	12,409	181	12,590
TOTAL	170,010	9,246	179,256

Source: BLM and Larson 1977.

Table 4

STATE WATER COMMISSION ACRES PERMITTED FOR IRRIGATION

Level 1	Acres
Consol	-
NGPL	169
ANG/Basin	320
Coyote 1	-
TOTAL	489
Level 2	
Dakota Star	-
Nokota	-
Renner's Cove	953
Underwood	-
Washburn	402
Coyote II	-
TOTAL	1,355
Levels 1 and 2	
TOTAL	1,844
Level 3	
Beulah-Center	372
Dickinson-Dunn	5,249
Garrison	4,005
Glen Ullin	-
Hazen-North Beulah	2,495
New Salem	-
Underwood	536
TOTAL	12,657

SOURCE: PSC Inventory Report 1976.

Estimates of agricultural production losses were based on figures obtained from the 1974 Census of Agriculture Preliminary County Reports[5]. Production values per acre, shown in Table 5, were extrapolated from statistics regarding the amount of cropland; the value of crop products sold, including nursery and hay products; and the value of livestock products sold. It should be noted that the value per acre figures include summer fallow acreage. In order to determine the actual losses due to the proposed action, these value per acre figures were multiplied by the amounts of cropland and rangeland which would be disturbed in various counties by the different projects. These amounts are shown in Table 6.

New urban/built-up acreage was computed by applying a multiplier to city population increases attributable to Level 1 and 2 development. The population figures were generated by REAP's economic-demographic model and obtained from the Economic Work Group. The multiplier, .2571, was derived from an analysis of the population and land area relationships of 13 McLean and Mercer County cities (Benedict, Butte, Max, Mercer, Turtle Lake, Underwood, and Washburn in McLean County and Beulah, Golden Valley, Hazen, Pick City, Stanton, and Zap in Mercer County). Past comprehensive plans for both counties included breakdowns of developed, non-vacant land. (Similar figures for Dunn County, also expected to be impacted by new population, were unavailable.) The developed landwas divided by 1970 census populations, thereby yielding an aggregate per capita multiplier which could be used to forecast new acreage expected for each additional resident (1727.7 acres ÷ 6721 = .2571). This figure is an average and changes in housing preference, parking needs, etc., could alter projections based on historic data. The multiplier may also be less accurate when applied to a large, non-rural community like Bismarck where the land area-population relationship may be somewhat different.

Table 5

VALUE OF AGRICULTURAL PRODUCTS SOLD

County	Value of crop products sold per acre	Value of livestock products sold per acre
BURLEIGH	$25.99	$25.04
DUNN	22.38	14.49
McLEAN	36.97	27.04
MERCER	24.39	24.32
MORTON	19.02	13.36
OLIVER	24.28	24.60
STARK	29.29	42.44
7 COUNTY AVERAGE	$26.05	$24.47

SOURCE: U.S. Department of Commerce, Bureau of the Census, County Preliminary Reports, August 1976.

Table 6

LEVELS 1 AND 2: MINING DISTURBANCE OF LAND BY COUNTY

	Urban/Built-up		Cropland		Rangeland		Forest/Wooded		Barren Land		Wetland		Water		Total Disutrbed Area	
Level 1	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
DUNN	-	-	5,851	57%	4,337	43%	-	-	-	-	-	-	12	∠ 1%	10,200	100%
MERCER	-	-	11,223	51%	9,802	45%	794	4%	-	-	13	∠ 1%	32	∠ 1%	21,864	100%
OLIVER	-	-	429	20%	1,264	59%	458	21%	-	-	-	-	2	∠ 1%	2,153	100%
TOTAL	-	-	17,503	51%	15,403	45%	1,252	4%	-	-	13	∠ 1%	46	∠ 1%	34,217	100%
Tentative Projects																
McLEAN	-	-	21,090	79%	4,739	18%	557	2%	64	∠ 1%	114	∠ 1%	136	1%	26,700	100%
MERCER	-	-	9,790	69%	4,081	29%	49	∠ 1%	189	1	114	1%	67	∠ 1%	14,290	100%
OLIVER	-	-	551	68%	255	32%	3	∠ 1%	-	-	-		1	∠ 1%	810	100%
TOTAL	-	-	31,431	75%	9,075	22%	609	1%	253	1%	228	1%	204	∠ 1%	41,800	100%
Level 2																
DUNN	-	-	5,851	57%	4,337	43%	-	-	-	-	-	-	12	∠ 1%	10,200	100%
McLEAN	-	-	21,090	79%	4,739	18%	557	2%	64	∠ 1%	114	∠ 1%	136	1%	26,700	100%
MERCER	-	-	21,013	58%	13,883	39%	843	2%	189	1%	127	∠ 1%	99	∠ 1%	36,154	100%
OLIVER	-	-	980	33%	1,519	51%	461	16%	-	-	-	-	3	∠ 1%	2,963	100%
TOTAL	-	-	48,934	65%	24,478	32%	1,861	3%	253	∠ 1%	241	∠ 1%	250	∠ 1%	76,017	100%

SOURCE: BLM and Larson 1977.

TRANSPORTATION

Highway

The movement of people and goods in the seven county study area has been, and will continue to be, accomplished primarily via streets and highways. Due to the region's rural character, road conditions, improvements, and use affect virtually all residents. Construction and maintenance of road and street mileage is the responsibility of five separate administrative jurisdictions: federal, state, county, organized township, and incorporated municipalities.

Regional roads under federal jurisdiction consist of those located on the Ft. Berthold Indian Reservation, usually referred to as Indian Service Roads.

State highways include Interstate and other major routes, often extending into or through urban areas. The state highway system is under the jurisdiction of the North Dakota State Highway Department.

County highways consist of a designated Federal Highway Aid System (FAS) and a regular county road system. County and other local road systems frequently extend into or through municipalities. County highways are under the jurisdiction of the Board of County Commissioners who are also responsible for construction and maintenance of bridges on local roads and streets.

Roads under the jurisdiction of organized townships serve local travel needs not met by the county system. Roads similar in character but located in unorganized townships fall under the jurisdiction of the Board of County Commissioners.

Incorporated cities develop and are responsible for their own arterial and street systems. Unincorporated city streets in unorganized townships remain the responsibility of the Board of County Commissioners. Unincorporated city streets in organized townships are under the jurisdiction of the township.

The functional scheme is based upon a stratification of routes, according to volume, service area, and trip length, and can be broken down into the following four hierarchical classes:[6]

Principal Arterials - Routes which have trip length and travel density characteristics indicative of substantial statewide or interstate travel, serve urban areas with populations over 25,000, and provide an integrated network without stub connections. Interstate 94 (I-94), US 83, and US 85 are the only regional routes meeting this criteria. I-94 is a four lane limited access highway and the major east-west route across North Dakota. US 83 runs north-south through the region, linking the cities of Bismarck and Minot. US 85, also a north-south route, traverses the western edge of Stark County, serving Williston and other western communities. There are 260 miles of principal arterials in the study area.

Minor Arterials - Routes which link cities and larger towns, provide interstate and intercounty service, and are characterized by trip lengths and travel densities greater than collector and local systems. Most of the region's state highways are included in the 661 miles of minor arterials. Only four cities in the region, Almont, Benedict, Butte, and Ruso, lack access to arterial highways, either principal or minor.

Major Collectors - Routes which serve as important intracounty travel corridors, linking large towns and county seats with nearby larger towns, cities, and arterials. The 1,659 miles of major collectors are generally county highways although small portions of some state highways (ND 28 and ND 53) have been so classified.

Minor Collectors - Routes which collect traffic from local roads, serve small communities, and link locally important traffic generators with their rural hinterland. There are 1,117 miles of minor collectors in the region, predominantly county highways.

The remaining 7,390 miles of county highways, unimproved roads, and trails are classified as rural local roads.

Although total highway mileage is greatest in McLean and Morton Counties, road density or total mileage relative to land area, is highest in McLean and Stark Counties.

The traffic volumes and highway improvement costs projected for the seven county area, as a result of coal and energy development, were based upon the Regional Environmental Assessment Program's (REAP) Economic-Demographic Model. This model is capable of projecting annually where construction, operation, and indirect workers, associated with individual projects or overall energy related growth, would likely live.

The REAP model distributed the projected workers among 35 cities in the seven county study area (Bismarck, Regan, Wing, Dodge, Dunn Center, Halliday, Killdeer, Butte, Falkirk, Garrison, Max, Mercer, Ruso, Turtle Lake, Underwood, Washburn, Wilton, Beulah, Golden Valley, Hazen, Pick City, Stanton, Zap, Almont, Flasher, Glen Ullin, Hebron, Mandan, New Salem, Center, Belfield, Dickinson, Gladstone, Richardton, and Taylor). Assignment of this new population to the various communities provided the Highway Department with the raw data necessary to project future volumes. It also showed commuting patterns for construction and operation workers associated with individual projects. The 1981 and 1989 projections included operation and indirect workers associated with plant additions to Basin's Leland Olds Station and Minnkota's Milton R. Young Station as well as UPA-CPA's new Coal Creek Station, although they were not among the Level 1 or 2 projects. Because their workers were not considered in REAP baseline projections, it was necessary to include them with the other projects in order to obtain an accurate estimate of traffic levels in 1981 and 1989.

The increase in highway traffic as a result of energy development would necessitate new improvements and added maintenance. The proposed improvements are based on existing roadway conditions and projected 1989 traffic. Since improvements would be designed for 1989 traffic, which may be less than 1981 peak volumes, it is anticipated a lower level of service would be provided during the peak traffic years. The proposed improvements would produce highways of adequate width to serve the projected traffic and would have surface depths sufficient to accomodate traffic on a 'load free" basis with no load restrictions imposed in the spring of each year.

Table 7 provides a detailed breakdown of improvements to the state system, including the type and mileage involved. Table 8 provides the same information for the county system. The combined improvements would cost $79,246,000. Table 9 lists the normal schedule of improvements on these highways without the proposed action. These improvements would total $25,953,000.

Railroad

Table 10 presents county track mileage by operator. Burlington Northern trackage accounts for 71% of the 567 total miles. Table 11 breaks down the seven county study area's trackage according to Department of Transportation classifications[7]. Burlington Northern's east-west route across Burleigh, Morton, and Stark Counties is classified as an A Mainline due to the movement of over 20 million gross tons annually. Burlington Northern's Mandan-Killdeer spur is classified as an A Branchline, carrying less than five million tons annually. The remaining Burlington Northern trackage, and all of the Soo Line trackage, is classified as B Branchline, carrying less than one million gross tons annually.

Table 7

DETAIL OF STATE HIGHWAY SYSTEM IMPROVEMENTS

Highway	Location	Type of Improvement			Cost
ND 8	Richardton to Halliday	Resurfacing	32.0		$ 2,432,000
ND 22	Dickinson to Killdeer	Selective grading, widening and surfacing	33.0		8,610,000
ND 25	Jct. I-94 to Center	Selective grading, widening and surfacing	29.0		6,206,000
ND 25	Center to jct. ND 31	Resurfacing	6.2		471,000
ND 31	Jct. I-94 to jct. ND 200A	Widening, base, and surfacing	30.7		4,175,000
		Glenharold Mine overpass			104,000
	Stanton Spur	Widening, base, and surfacing	1.7		231,000
		BNRR overpass near Stanton			250,000
ND 48	Center to jct. ND 200A	Widening, base, and surfacing	8.7		1,705,000
		1 major drainage structure			100,000
ND 49	Jct. I-94 to 1 mile south of Coyote 1	Widening, base, and surfacing	24.4		4,196,000
		1 major drainage structure			100,000
	1 mile south of Coyote 1 to jct. ND 200	Widening, base, and surfacing	6.0		1,752,000
		Grade, base, and surfacing (added 2 lane)			816,000
		1 major drainage structure (4 lane)			200,000
		BNRR overpass near Beulah			500,000
		Interchange jct. ND 49 and ND 200			450,000
ND 200	Killdeer to Halliday	Widening, base, and surfacing	20.0		3,920,000
		2 major drainage structures			200,000
ND 200	NGPL access point	Grade, base, and surfacing (added 2 lane)	1.5		438,000
ND 200	Halliday to 1 mile west of jct. ND 49	Widening, base, and surfacing	27.0		5,292,000
		1 major drainage structure			100,000
		BNRR overpass at Dodge			250,000
ND 200	1 mile west of jct. ND 49 to 1 mile east of Hazen	Widening, base, and surfacing	10.0		1,160,000
		BNRR overpass at Hazen			250,000
		Grade, base, and surfacing (added 2 lane)			2,920,000
		BNRR overpass at Hazen			250,000
ND 200	1 mile east of Hazen to jct. ND 31	Widening, base, and surfacing	8.6		1,686,000
		1 railroad overpass			250,000
		1 major drainage structure			100,000
ND 200	Jct. 200A to Pick City	Widening, base, and surfacing	17.9		2,434,000
ND 200	Pick City to jct. US 83	Resurfacing	12.0		480,000
ND 200A	Jct. ND 31 to Washburn	Resurfacing	15.0		1,800,000
				TOTAL	$53,778,000

SOURCE: North Dakota State Highway Department 1977.

Table 8

COUNTY HIGHWAY SYSTEM IMPROVEMENTS

Highway	Location	Type of Improvement			Cost
FAS 1329	Werner to Lake Sakakawea	Grade, base, and surfacing	11.5		$ 2,699,000
FAS 1329 & 1323	NGPL Construction Access	Grade, base, and surfacing	4.0		361,000
FAS 2905	Golden Valley Spur	Widening, base, and surfacing	1.0		136,000
FAS 2910	Designated 1806 north of Beulah to jct. ND 200	Grade, base, and surfacing	15.0		3,390,000
FAS 2913	Zap to Lake Sakakawea	Grade, base, and surfacing	12.5		2,825,000
FAS 2921	Jct. ND 200 to 4 miles north of Beulah	Grade, base, and surfacing (4 lanes)	4.0		2,128,000
FAS 2921	4 miles north of Beulah to Lake Sakakawea	Grade, base, and surfacing	10.0		1,808,000
FAS 2921	Jct. ND 200 to jct. ND 49	Widening, base, and surfacing	3.0		318,000
FAS 2922	Zap to Beulah	Grade, base, and surfacing	8.6		2,253,000
FAS 2927	Hazen to designated 1806	Grade, base, and surfacing	12.3		2,780,000
Township Road	4 miles north of Zap to jct. FAS 2927	Grade, base, and surfacing	14.0		3,164,000
Township Road	4 miles north of Hazen to jct. ND 200	Grade, base, and surfacing	6.0		1,356,000
				TOTAL	$23,218,000
Access roads to recreation areas (25 miles @ $90,000)					$ 2,250,000
				TOTAL	$25,468,000

SOURCE: North Dakota State Highway Department 1977.

Table 9

NORMAL SCHEDULE OF HIGHWAY IMPROVEMENTS WITHOUT PROPOSED ACTION

Highway	Mo/Yr	Location	Type of Improvement	Miles		Cost
ND 8	4/87	12 miles north of Richardton to jct. ND 200	Surfacing	19.7		$ 815,000
ND 22	11/81	Jct. I-94 to Killdeer	Regrading	33.0		4,125,000
ND 22	11/82	Jct. I-94 to Killdeer	Surfacing	33.0		1,484,000
ND 25	11/82	Jct. I-94 to Center	Selective grading, widening and base	28.6		3,579,000
ND 25	7/84	Jct. I-94 to Center	Surfacing	28.6		1,286,000
ND 25	7/85	Center to jct. ND 31	Surfacing	6.2		236,000
ND 31	7/85	Jct. I-94 to jct. ND 200A	Surfacing	30.4		1,232,000
ND 48	2/82	Center to jct. ND 200	Surfacing	8.7		362,000
ND 49	7/81	Glen Ullin to Beulah	Surfacing	33.6		1,376,000
ND 200	11/77	Jct. ND 49 to jct. ND 31	Surfacing	16.0		688,000
ND 200	11/77	Jct. ND 49/200	Intersection improvements	0.1		44,000
ND 200	5/78	Hazen bypass	Grade, base, and surfacing	2.5		613,000
ND 200	2/85	Werner to Dunn/Mercer County line	Surfacing	17.7		732,000
ND 200	2/86	Killdeer to Werner	Surfacing	13.2		548,000
ND 200	3/88	Dunn/Mercer County line to 1 mile east of jct. ND 49	Surfacing	18.4		744,000
ND 200	3/88	Pick City to jct. US 83	Surfacing	13.3		582,000
					TOTAL	$18,446,000
County highways, 1978-1990 (Dunn-$3,080,000; Mercer-$4,427,000)						7,507,000
					TOTAL	$25,950,000

SOURCE: North Dakota State Highway Department 1977.

Table 10

APPROXIMATE RAILROAD TRACK MILEAGE BY COUNTY AND OPERATOR

County	Burlington Northern	Soo Line	Total
BURLEIGH	89	61	150
DUNN	30	-	30
McLEAN	12	111	123
MERCER	50	-	50
MORTON	121	-	121
OLIVER	34	-	34
STARK	59	-	59
TOTAL	395	172	567

SOURCE: North Dakota Public Service Commission 1976.

Table 11

APPROXIMATE TRACK CLASSIFICATION MILEAGE BY COUNTY

County	A Mainline	A Branchline	B Branchline	Total
BURLEIGH	39	-	111	150
DUNN	-	30	-	30
McLEAN	-	-	123	123
MERCER	-	50	-	50
MORTON	63	13	45	121
OLIVER	-	34	-	34
STARK	59	-	-	59
TOTAL	161	127	279	567

SOURCE: U.S. Department of Transportation, North Dakota Public Service Commission 1976.

Air

Bismarck Airport is illustrative of the rapid increase in area airport activity. Operations in 1976 climbed 18% over 1975 operations. Outgoing passenger enplanements in 1976 totaled 119,279, 28% of all North Dakota enplanements. This represents an increase over 1975 of 18,524, or 18%, at a time when the U.S. average was 5%. Bismarck is now acquiring land south and east of the airport for new and extended runways. Expansion and improvement plans for other airports include: a combined airport to replace existing facilities at Beulah and Hazen; reconstruction and repaving of runways at Dickinson; a new airport site two miles west of Garrison; extension and paving of turf strips at Glen Ullin; runway paving and extensions at Mandan; and a new airport site for Washburn, where present expansion is impossible. Plans are also nearing completion for a new recreational airport on the shore of Lake Sakakawea, two miles northwest of Pick City in Mercer County.

Transmission

Over 41% of the transmission mileage in the seven county study area is 41.6 kv or 69 kv line, usually strung on single poles with cross bars. These lines are owned by Montana-Dakota Utilities, Otter Tail Power, and four rural electric cooperatives (McLean, MorGranSou, Oliver-Mercer, and Slope). The 115 kv lines are generally suspended from wood H-frame towers. Most of the lines over 115 kv are suspended from metal structures. With the exception of Minnkota's new ± 250 kv direct current line and United Power Association-Cooperative Power Association's proposed ± 400 kv direct current line, all transmission mileage is alternating current. Although their terminal costs are greater, direct current lines are economical over longer distances because they have a higher electrical transmission efficiency and require one less conductor. They can also maintain some electrical transmission despite the loss of one line by utilizing a ground electrode, i.e., a large grid of buried wire, which completes the electrical circuit by enabling transmission through the ground.

Table 12 provides a measure of transmission line density for each county. Line density is greatest in Oliver County with approximately .32 miles of transmission line for each square mile of area. Table 13 shows the number of quarter sections in the seven counties which are affected by more than one transmission line crossing or crossings with 90° turns. The Public Service Commission has found that these types of transmission line crossings may interfere with agricultural operations, particularly crop spraying.

Table 12

COUNTY TRANSMISSION LINE DENSITY

County	Miles of line per square mile of area
BURLEIGH	.27
DUNN	.06
McLEAN	.17
MERCER	.16
MORTON	.17
OLIVER	.32
STARK	.14
SEVEN COUNTY AVERAGE	.17

SOURCE: Larson 1977.

Table 13

QUARTER SECTIONS AFFECTED BY MORE THAN ONE TRANSMISSION LINE CROSSING OR CROSSINGS WITH 90° TURNS

County	Number of Quarters
BURLEIGH	98
DUNN	33
McLEAN	131
MERCER	61
MORTON	130
OLIVER	42
STARK	38
TOTAL	533

SOURCE: PSC unpublished survey 1977.

OWNERSHIP

All surface and subsurface (mineral) land in West-Central North Dakota was originally under the ownership of the United States government which acquired title to Louisiana Purchase lands in 1803. During the following 130 years the federal government disposed of much of this land through numerous sales, grants, and homestead laws, encouraging westward expansion and settlement.

The year 1862 was especially noteworthy due to passage of three of the most significant laws promoting settlement of western lands. The first, the Homestead Act, offered each successful homesteader title to 160 acres, including both surface and mineral estates. In order to advance development of a national transportation network, the Transcontinent Railroad Act granted to various railroads right-of-way and title to odd-numbered sections of land 20 miles either side of the mainline. In the territories, including Dakota, the grant was extended to 40 miles either side. Adoption of the Merrill Act fostered establishment of land grant colleges and universities through the transfer of federal lands to state ownership.

Additional laws followed, all supportive of continued disposal of federal lands. Generally, these lands were passing into private or state ownership unencumbered by deed reservations or restrictions. The settler obtained full rights to his land and the minerals beneath it. However, late in the 1800's the federal government began to recognize the need for retention of some federal lands. Legislation was enacted establishing national parks and forests. In 1909 Congress, perceiving the value of identified "coal lands," passed an act allowing for transfer of surface titles on those lands but reserving the mineral rights, especially coal, to the United States. This act was followed, in 1916, by the Stockraising Homestead Act which mandated reservation of all minerals on successful entryman patents to the United States.

The historic land divesture policy of the federal government and the later recognition and reservation of mineral resources resulted in the present ownership pattern in West-Central North Dakota. This pattern is characterized by a fragmented mosaic of federal, state, and private lands. It is further characterized by a substantial alienation of surface and subsurface estates where the estates have been severed and placed under separate ownership.[8]

Surface

Federal Surface.

The pattern of surface ownership indicates that, during the homestead era, the lands best suited for agriculture were patented while the less productive land remained in federal ownership. Table 14 presents a breakdown of federal surface ownership in West-Central North Dakota by agency. Those federal agencies with surface management responsibilities include the following:

Agricultural Research Service (ARS) - The ARS conducts research related to production, marketing, and utilization of agricultural products; control of animal diseases and pests; and, in North Dakota, reclamation suitability and procedures. The ARS operates the Northern Great Plains Research Center on 1,120 acres of land southwest of Mandan in Morton County.

Bureau of Indian Affairs (BIA) - Over 300,000 acres of Indian lands are held in trusteeship by the BIA. With the exception of 640 acres in McLean County, these trust lands all lie within the boundaries of the Ft. Berthold Reservation. Individuals have been allotted 271,444 acres of trust land with the remaining 47,061 acres held tribally.

Historically, Indian lands have diminished due to cessions to the federal government, non-Indian sales, and submergence by mainstream reservoirs. Tribes are now consolidating and strengthening control over their lands in an effort to halt further losses and safeguard valuable Indian and natural resources.

Table 14

FEDERAL SURFACE ACREAGE

	ARS	BIA	BLM	BR	Corps	FWS	Military	Total Federal Surface Acreage	Percent of Total Surface Acreage
BURLEIGH	-	-	1,061	2,965	9,112	16,937	10	29,923	3%
DUNN	-	200,050	15,988[2]	16	61,812	3,193	-	281,059	21%
McLEAN	-	91,442	599	8,692	159,316	5,407	63	265,519	18%
MERCER	-	27,013	459	5	51,779	-	-	79,256	11%
MORTON	1,120	-	252	2	14,254	-	-	15,628	1%
OLIVER	-	-	112	12	-	-	-	286	< 1%
STARK	-	-	-	2,261	-	-	-	2,261	< 1%
TOTAL	1,120	318,505[1]	18,471	13,953	296,273	25,537	73	673,932	9%

SOURCE: Federal agencies 1977.

[1] Trust lands allocated to the tribes total 47,061 acres with the remainder allotted to individuals.

[2] An application for withdrawal and transfer to the Forest Service of 15,293 acres is pending.

Bureau of Land Management (BLM) - The BLM is responsible for administration of all Public Land, originally the public domain lands. Most of these lands were disposed of by the federal government; the remaining homesteaded lands in West-Central North Dakota now fall under the management responsibility of the BLM's Montana State Director.

Recent congressional policies have placed a heavy emphasis on the multiple use concept in natural resource management. While livestock forage production will remain an important element, utilization of Public Land for development of wildlife habitat, mineral resources, watershed plans, and recreation opportunities will grow.

Bureau of Reclamation (BR) - Acquired primarily for reclamation purposes, BR lands in West-Central North Dakota are concentrated in Burleigh, McLean and Stark Counties. The Garrison Diversion Project has resulted in land acquisition for canal and supply works right-of-way and fish and wildlife mitigation areas in Burleigh and McLean Counties. In Stark County, the BR manages lands associated with the Dickinson Dam and Edward Arthur Patterson Reservoir. The BR also operates a number of electrical substations and switchyards as part of its power distribution system.

Corps of Engineers (Corps) - The Army Corps of Engineers manages land acquired for water resource purposes including hydroelectric facilities, river flow and flood control, navigation improvement, bank stabilization, and recreation. Most of the Corps' land in the region lies within the taking lines of the Garrison and Oahe Reservoirs where land was acquired in fee or transferred from public domain. While basic administrative responsibility rests with the Corps, local, state, and federal agencies, and private parties, often have management roles.

Fish and Wildlife Service (FWS) - FWS administered lands include wildlife refuges in Burleigh, Dunn, and McLean Counties and waterfowl production areas in Burleigh and McLean Counties. Perpetuation of fish and wildlife species and development of fish and wildlife resources for public use and enjoyment are the primary management objectives of the FWS.

Military - A very small amount of land is used for military purposes, e.g., reserve units and missile sites.

State Surface. Administration of state lands in the region is fragmented, involving seven different state agencies. Table 15 breaks down the state owned surface among the following agencies:

State Land Department - The Land Department administers the largest amount of state land within the region, the bulk of which was acquired under provisions of the Enabling Act of 1889 which granted to the state, for school purposes, sections 16 and 36 of each township. In the event these sections were already homesteaded, the state was given the option of selecting lands in lieu. Some of these grant lands lie within the Ft. Berthold Reservation and are now claimed by the tribes. The Land Department also acquired property through mortgage foreclosures during the 1930's. Land Department holdings are surface leased for five year periods, primarily for pasture and grazing.

Highway Department - Highway Department lands are generally highway right-of-way although they include a number of scenic easements in Morton County. Right-of-way is acquired for all Interstate and Primary Federal Aid System mileage and some of the Secondary Federal Aid System mileage.

Game and Fish Department - Game Management Areas (GMA's) comprise all of the Game and Fish Department lands. The Killdeer Mountain GMA in Dunn County accounts for over half of this land.

Department of Institutions - Department of Institution lands lie in Burleigh and Morton Counties, consisting largely of state penitentiary farmlands.

Table 15

STATE SURFACE ACREAGE

	Land Dept.	Highway Dept.[1]	Game & Fish Dept.	Dept. of Institutions	Park Service	Board of Higher Education	Historical Society	Total State Surface Acreage	Percent of Total Surface Acreage
BURLEIGH	28,068	5,601	2,032	2,240	-	-	52	38,533	4%
DUNN	25,980	3,437	6,731	-	1,500	-	1	37,649	3%
McLEAN	21,208	6,704	119	-	-	-	30	28,061	2%
MERCER	15,090	2,130	-	-	-	-	182	17,402	2%
MORTON	17,976	6,524[2]	3,193	2,344	978	-	21	31,036	2%
OLIVER	8,645	3,564	567	-	-	-	-	12,776	3%
STARK	6,464	4,492	-	-	-	1,654	5	12,615	1%
TOTAL	123,971	32,452	12,642	4,584	2,478	1,654	291	178,072	2%

SOURCE: State agencies 1977.

[1] Highway Department right-of-way estimated by using average acreage figures per system mile.

[2] Includes scenic easements totaling 326 acres.

Park Service - The Park Service owns a portion of Little Missouri Bay State Park in Dunn County and all of Fort Lincoln State Park in Morton County.

Board of Higher Education - Board of Higher Education lands include Dickinson State College and the Dickinson Experiment Station, both in Stark County.

Historical Society - Historical Society holdings are associated with various historical sites in the region.

Subsurface

Federal Subsurface. The federal government is the largest single mineral owner in West-Central North Dakota, holding 14% of the subsurface mineral acreage. Table 16 presents the amount of unrestricted federal subsurface acreage for each of the region's seven counties.

The pattern of federal ownership reflects settlement characteristics of the region at the time Congress first mandated reservation of minerals in 1909. By that time, homesteading had reached the Missouri River and stretched further west along the Northern Pacific Railroad mainline. These homesteaders held title to both surface and mineral estates. The concentration of federal minerals increases on land west of the Missouri and distant from the mainline, which were settled after 1909. This is apparent in Dunn and Mercer Counties where federal minerals comprise percentages much higher than those in Burleigh, McLean, and Morton Counties.

Table 16 also illustrates the considerable alienation of surface and subsurface estates. Only 3% of the unrestricted mineral acreage lies beneath federal surface. The remaining 97% was reserved to the United States when the surface was patented and now lies under privately owned land.

Past federal coal leasing activity in the region has been limited to Mercer and Oliver Counties, as illustrated in Table 17. Pending lease applications total 55,427 mineral acres, 44,377 of which are part of Natural Gas Pipeline Company of America's Dunn County application. Other applicants include Falkirk

Table 16

FEDERAL SUBSURFACE MINERAL ACREAGE[1]

	Under Public Surface	Under Private Surface	Total Unrestricted[2]	Percent of Total Subsurface Acreage
BURLEIGH	3,624	28,579	32,203	3%
DUNN	18,332	407,526	425,858	32%
McLEAN	3,716	119,540	123,256	8%
MERCER	893	163,147	164,040	23%
MORTON	1,742	516	2,258	∠ 1%
OLIVER	112	89,934	90,046	19%
STARK	320	168,786	169,106	20%
TOTAL	28,937	938,028	1,006,767	14%

SOURCE: BLM Minerals Inventory 1975.

[1] Does not include Ft. Berthold Reservation.

[2] The seven counties contain an additional 53,226 acres of restricted minerals. These acres may or may not include full and complete federal ownership and/or control of coal resources.

Table 17

FEDERAL COAL LEASING ACTIVITY

	Existing Lease Acreage	Lease Application Acreage
BURLEIGH	-	-
DUNN	-	44,377
McLEAN	-	999
MERCER	6,797	9,771
MORTON	-	-
OLIVER	3,126	280
STARK	-	-
TOTAL	9,923	55,427

SOURCE: BLM 1976.

Mining Company (North American Coal Corporation), McLean County; Coteau Properties (North American Coal Corporation), Mercer County; and Consolidation Coal Company, Mercer and Oliver Counties.

State Subsurface. Historically, State of North Dakota subsurface mineral ownership rested predominantly with two state agencies, the Land Department and the Bank of North Dakota.

School grant lands and property acquired through mortgage foreclosures in the 1930's comprise most of the Land Department's portfolio. With regard to grant lands, the State Land Board is required by law to act in the best interests of the beneficiaries of the trust, i.e., the schools and institutions. Fee title sale of Department lands included all mineral rights until 1939. In that year the state first recognized the coal value and mandated reservation of 5% interest to the state. The reservation percentage was increased to 50% in 1941 and 100%, on all grant lands, in 1960. Table 18 shows subsurface ownership by percentage and agency. The Land Board has leased a small amount of coal, under 10 and 20 year leases, at public auction. These coal leases have generally been associated with existing mining operations and are listed in Table 19. Due to a lack of adequate reclamation laws, the Board placed a moratorium on all coal leasing in 1971. A sale was finally held in 1975, following enactment of a state reclamation law, but all bids were rejected after the Board determined the leases would not meet newly adopted criteria. The Board wishes to avoid speculation and intends to lease coal in conjunction with future federal leasing and existing mining activity.

The Bank of North Dakota, the only state owned bank in the United States, obtained mineral rights as a result of borrower defaults on loans extended during the period 1920-1932. The Bank reserved mineral rights, usually a 50% interest, on lands acquired through foreclosure and subsequently resold. Past

Table 18

STATE SUBSURFACE MINERAL ACREAGE[1]

	100% Reservation[2]		50% Reservation		5% Reservation		Total Acres Affected	Percent of Total Subsurface Acreage
	Land Dept.	Bank of ND	Land Dept.	Bank of ND	Land Dept.	Bank of ND		
BURLEIGH	37,080	-	50,360	43,620	-	4,944	136,004	13%
DUNN	38,720	-	30,760	29,202	480	8,664	107,826	8%
McLEAN	36,800	-	45,400	50,800	-	91,630	224,630	15%
MERCER	24,360	-	14,880	18,026	-	68,334	125,600	18%
MORTON	26,240	-	59,240	52,368	-	7,968	145,816	12%
OLIVER	21,680	560	6,880	9,040	360	3,034	41,554	9%
STARK	10,880	-	52,280	18,160	640	7,994	89,954	11%
TOTAL	195,760	560	259,800	221,216	1,480	192,568	871,384	12%

SOURCE: State Land Department, Bank of North Dakota 1977.

[1] These figures may be subject to fluctuation due to possible prior claims by the federal government.

[2] State law requires 100% reservation only on grant lands held by the Land Department.

Table 19

STATE COAL LEASING ACTIVITY[1]

	100% Reservation		50% Reservation		Total Acres Leased
	Land Dept.	Bank of ND	Land Dept.	Bank of ND	
BURLEIGH	-	-	-	-	-
DUNN	-	-	-	-	-
McLEAN	-	-	-	320	320
MERCER	1,058	-	1,080	160	2,298
MORTON	-	-	-	-	-
OLIVER	180	-	640	-	820
STARK	300	-	-	-	300
TOTAL	1,538	-	1,720	480	3,738

SOURCE: State Land Department, Bank of North Dakota 1977.

[1] There are presently no state coal leases of acreage with 5% reservation.

mineral leasing has been limited to gas and oil with minor coal leasing occurring only when associated with existing mining operations. An informal hold was placed on coal leasing in 1972 due to the absence of reclamation laws. The only tract leased since 1972 is located at the Falkirk Mine site, in an area to be occupied by mine buildings. The lease set precedent by requiring complete mining plans and advance royalties to discourage speculation. In 1977 the State Legislature placed all the Bank's mineral holdings under Land Department administration.

Private Subsurface. Any discussion of subsurface ownership in West-Central North Dakota would be incomplete without mention of the two largest private owners, the Federal Land Bank and the Burlington Northern Railroad.

Burlington Northern's holdings are the largest, comprising 7% of the study area's subsurface and as much as 16% in individual counties. Burlington Northern originally acquired the 521,080 acres through federal grants extended to finance completion of a transcontinental railroad route and the company adhered to a policy of reserving minerals upon sale of the surface. Some of Burlington Northern's coal acreage has been leased with, where appropriate, options for joint ventures.

The Federal Land Bank is a chartered farmer owned cooperative, operating under the supervision of the Farm Credit Administration. The name is a misnomer since the Bank is neither federally owned nor federally subsidized. Primarily a lending institution, the Bank acquired substantial amounts of land through mortgage foreclosures in the 1930's and 1940's. Bank policy was to reserve 50% of the subsurface minerals under the acquired lands upon their subsequent sale. Present mineral holdings are shown in Table 20. Approximately 25% of these holdings have been leased although none of the leaseholds is presently being mined.

Table 20

FEDERAL LAND BANK SUBSURFACE MINERAL ACREAGE[1]

	100% Reservation	50% Reservation	Other	Total Acres	Acres Leased
BURLEIGH	320	57,635	-	57,955	2,560
DUNN	-	21,369	472	21,841	13,618
McLEAN	1,259	59,222	-	60,481	16,987
MERCER	-	13,424	-	13,424	6,941
MORTON	200	26,989	160	27,349	11,620
OLIVER	-	6,648	153	6,801	3,522
STARK	-	34,994	-	34,994	13,221
TOTAL	1,779	220,281	785	222,845	68,459

SOURCE: Federal Land Bank 1977.

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[1] These figures may be subject to fluctuation due to possible prior claims by the federal government.

PLANNING AND ZONING

The following conditional use permit conditions were adopted by the McLean and Mercer County Boards of Commissioners. In both cases, the county boards wished to supplement the standard conditions specified in the zoning ordinances with additional conditions pertaining to specific concerns. The ANG Coal Gasification Plant conditions cover a variety of subjects ranging from road closings to environmental issues and financing of some county services. The conditions attached to the Falkirk Mining Company's permit address road closures, road maintenance, and water related impacts due to mining. The County Board also indicated a desire to provide commercial coal to local residents, thereby eliminating the need to travel to Mercer County for coal purchases.

The conditional use permit has proven to be an effective zoning tool, providing local units of government with a flexible means of regulating new development, particularly large and complex energy projects like the ANG Coal Gasification Plant and the Falkirk Mine.

Additional conditions attached to ANG's conditional use application by Mercer County Planning Commission and Board of County Commissioners:

In addition to those conditions applying to a coal gasification conditional use as stated in the Mercer County Zoning Ordinance, the following conditions are attached to this approval of this conditional use and all such conditions must be met by ANG Coal Gasification Company, hereinafter referred to as ANG, and its successors or assigns. Conditions 3, 13, 16, and 19 shall be met prior to the issuance of the Certificate of Zoning Compliance for this conditional use.

1. ANG shall construct its proposed gasification plant in two separate phases. This Certificate of Approval of a Conditional Use and the Certificate of Zoning Compliance which may be issued for and pursuant to this Certificate of Approval shall apply to and authorize only the first separate phase which shall have a daily production capacity not exceeding 125 million cubic feet per average annual day. The second separate phase will require a second Certificate of Approval of a Conditional Use for such second phase and a Certificate of Zoning Compliance for such second Certificate of Approval.

2. Any right created by the approval of a conditional use for the first separate phase is created solely in ANG and neither such right nor this Certificate of Approval of a Conditional Use for such first phase nor the Certificate of Zoning Compliance which may hereafter be issued for and pursuant to this Certificate of Approval shall be assigned except as approved in writing by the Board of County Commissioners.

3. ANG shall submit to the Board of County Commissioners an erosion and sediment control plan approved by the Mercer County Soil Conservation District Supervisors for the plant site, said plant site being that as described in the ANG application for approval of a conditional use boundary line survey.

4. ANG shall comply with and follow all requirements and recommendations of the erosion and sediment control plan referred to in Condition No. 3. During construction of the plant and during the operational life of the plant, ANG shall employ accepted soil conservation practices to reduce runoff and retain natural vegetation at the plant site, said plant site being that as described using boundary line survey in the ANG application for approval of a conditional use.

5. Upon termination of the gasification operations or other uses approved by the Board of County Commissioners, ANG shall reclaim and return the plant site to its present condition and productivity as of the date of this Certificate of Approval. In reclaiming and returning the plant site to such condition and productivity, ANG shall follow and be bound by all applicable local, state and federal laws, rules and regulations.

6. The approval of this conditional use shall in no way be construed as a Board of County Commissioners authorization for any part or component of the ANG gasification plant to permanently close or obstruct any section line or section line road unless such closing or obstruction is in the written opinion of the Mercer County State's Attorney permitted by law.

7. Upon the full occurrence of Condition No. 6 and prior to any permanent obstruction of or closing to public vehicular traffic of any portion of County Road 13 crossing the plant site, ANG shall construct three new roads bounding the plant site and Section 25, Township 145 North, Range 88 West, on the east, south and west Section lines. Such roads shall be constructed according to county road standards in effect by resolution of the Board of County Commissioners at the time the construction of such roads begins. Upon the full occurrence of Condition No. 6 and prior to any permanent obstruction of or closing to public vehicular traffic of any portion of County Road 14 west of the plant site between County Road 13 and the east-west Section Line road north of the plant site, ANG shall construct a road or roads around all such obstructions or closings of County Road 14 so as to provide a means for public vehicular traffic equal to the condition of County Road 14 for public vehicular traffic as of the date of this Certificate of Approval.

8. ANG shall construct an access road from the plant site to County Road 11. Such road shall be constructed according to county standards in effect by resolution of the Board of County Commissioners at the time the construction of such road begins. ANG shall reimburse Mercer County for the maintenance costs of this access road as well as for Mercer County's portion of the reconstruction and maintenance costs for that section of County Road 11 from the access road intersection to the intersection of State Highway 200. The reimbursement for such reconstruction and maintenance costs shall be made annually and the amount of the reimbursement shall be determined by the Board of County Commissioners according to the cost of reconstructing and maintaining such roads according to county standards in effect by resolution of the Board of County Commissioners at the time such reconstruction or maintenance occurs. This annual reimbursement shall be a continuing obligation of ANG until such time as the Board of County Commissioners deems energy associated tax revenue is adequate to warrant and sustain county assumption of the costs of such reconstruction and maintenance.

9. ANG shall annually reimburse Mercer County for equipment use, labor, materials, and other expenditures for the maintenance of any county roads within Mercer County designated as construction haul roads for the purpose of constructing the ANG plant. All such construction haul roads shall be designated solely by the Board of County Commissioners after consulting with ANG. The reimbursement for such maintenance shall be made for the duration of the construction period of the ANG plant and shall be on an annual basis. The amount of such annual reimbursement shall be determined by the Board of County Commissioners according to the costs of maintaining such roads according to county standards in effect by resolution of said Board at the time the maintenance occurs.

10. All annual reimbursement which ANG is required to make pursuant to Conditions No. 8 and No. 9 shall be due and payable on the first day of October of each year.

11. Prior to the commencement of construction of any deepwell waste disposal facility, ANG shall submit to the Board of County Commissioners a copy of the appropriate permit issued by the North Dakota State Department of Health for such disposal facility and shall provide said Board any further information regarding such disposal facility that said Board deems necessary.

12. ANG shall neither draw nor utilize groundwater from underlying or adjacent aquifers following the completion of any water pipeline and commencement of water diversion from Garrison Reservoir.

13. ANG shall provide the Board of County Commissioners with a detailed written report satisfactory to said Board outlining the effects of the proposed gasification plant on area groundwater quantity and quality in general, and underlying aquifers specifically. Such report shall outline any possible adverse effects on area groundwater quantity and quality and shall set forth ameliorating measures ANG intends to take to cure such adverse effects.

14. ANG shall make all reasonable efforts to avoid damage to the water supply and quality of Mercer County. ANG shall be liable for any valid claim of damage due to disrupted or diminished water supplies or deteriorating water quality resulting from acts or omissions by ANG, its agents, servants or employees, and shall make such repairs, alterations, or construction necessary to restore groundwater quantity and quality to levels existing prior to the construction of the gasification plant.

15. ANG shall provide for suitable vehicles, equipment, and procedures to cope with fires, explosions, chemical spills, or other calamities occurring at the gasification plant and shall have sole responsibility for dealing with such occurrences. Mercer County shall have no duty to assist in dealing with such occurrences at said gasification plant.

16. ANG shall submit to the Board of County Commissioners a report satisfactory to said Board outlining ANG's plan to comply with Condition No. 15. Said report shall show whether ANG's plan is in strict compliance with all applicable state and federal laws, rules and regulations.

17. ANG shall permit free access to the plant site to the county land use administrator and any other representative designated by the Board of County Commissioners. Such access shall be permitted at such times and under such circumstances so as not to create a safety risk or to violate any of ANG's contractual secrecy obligations.

18. Upon request of the Board of County Commissioners, ANG shall report to said Board regarding ANG's compliance with state and federal legislation and regulations.

19. ANG shall file with the Board of County Commissioners a plan for the financing of the ANG coal gasification plant pollution control facilities. Such plan shall include Mercer County as one of the entities through which such pollution control facilities may be financed.

20. Upon ANG's failure to comply with any conditions stated as applying to this conditional use in the Mercer County Zoning Ordinance or as attached by this Certificate of Approval, Mercer County shall have available to it all civil and criminal enforcement provisions and remedies available under North Dakota Law or the Mercer County Zoning Ordinance.

Conditions attached to Falkirk Mining Company's (North American Coal Corporation) conditional use permit application by McLean County Planning Commission and Board of County Commissioners.

1. That any road closure, temporary or otherwise, between sections five and six or any other section line road, be subject to a separate conditional use permit and public hearing as provided in this ordinance.

2. That a survey on the various alternates or closing or not closing of road between sections five and six, Township 145 North, Range 82 West, as suggested by Falkirk Mining, be conducted at Falkirk Mining expense and include representatives from Underwood and the County Commissioners from McLean County. That said survey be conducted by a firm mutually agreed upon by representatives of the County and Falkirk Mining.

3. Before mining operations begin, all wells for domestic and livestock use within two miles of the mining operation shall be checked by Falkirk Mining as to the quality and quantity, with existing pumping equipment, in a manner acceptable to land owners, Falkirk Mining, and the McLean County Planning Commission.

4. Falkirk Mining, at some time in the future when financially feasible, is agreeable to the use of their facilities to supply commercial coal to the public.

REFERENCES

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